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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,248	04/11/2005	Hideharu Itatani	122430	9181
25944 7590 03/24/2008 OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850				
EXAMINER EVERHART, CARIDAD				
ART UNIT 2891		PAPER NUMBER		
MAIL DATE 03/24/2008		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/521,248

Applicant(s)

ITATANI ET AL.

Examiner

Caridad M. Everhart

Art Unit

2891

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-19 is/are allowed.
- 6) ☒ Claim(s) 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s) Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s) Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Applicant's arguments filed 12-26-2007 have been fully considered but they are not persuasive with respect to claim 20. Claim 20 is an apparatus claim and is therefore rejected with respect to the apparatus limitations, which are taught by the prior art of record as applied in the rejections of the prior office action. It was pointed out in the rejection that the steps and the apparatus for carrying out the steps as discussed in the rejection were taught by the prior art of record. For example, Chun teaches a process chamber and a heater in the substrate pedestal for the substrate and chambers for remotely exciting the gases as well as a manifold which Fig. 2 shows has entrance pipes for the separate gases(Fig. 1, Fig. 2, and paragraph 0026). In addition, as pointed out in the rejection, Chun further teaches a controller, and other apparatus for carrying out the process as pointed out in the rejection.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-11,13,15-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Chung et al (US 2004/0018304A1).

Chung et al disclose and apparatus and the process of disposing a substrate within a chamber, the substrate being a semiconductor wafer which may be silicon(paragraph 0032), the gas is activated remotely from the chamber(paragraph 0035), the precursor is pulsed to the chamber(paragraph 0040). An activated reducing

gas which is activated remotely from the chamber may be provided to the chamber(paragraph 0046 and 0047). The steps are repeated(paragraph 0049). The precursor and the reducing gas may be activated (paragraph 0050). A metal may be deposited(paragraph 0057) or a metal compound(paragraph 0057). The thickness of the layer is within the recited range and the film formed may be a TiN barrier layer(paragraph 0057). The reducing gas may be NH₃(paragraph 0053). The precursor may be TDMAT, which satisfies the limitation of claim 13(paragraph 0052). The temperature is within the recited range(paragraph 0038). There is a microprocessor controller which regulates the reactor and the gas injection(paragraph 0020). Carrier gas alternates with the reactive gases(paragraph 0031). The process chamber includes a heated substrate pedestal(paragraph 0019). The gas may be supplied not activated and the activation may be within the chamber (paragraph 0026

Allowable Subject Matter

Claims 16-19 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caridad M. Everhart whose telephone number is 571-272-1892. The examiner can normally be reached on Monday through Fridays 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, B. Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2891

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Caridad Everhart/
Primary Examiner
AU2891

3-21-2008